PITTSBURGH® AUTOMOTIVE

Brake Bleeder & Vacuum Pump Kit

When unpacking, make sure that the product is intact and undamaged.
If any parts are missing or broken, please call 1-800-444-3353 as soon as possible.

92474 Fuel Injection Test Kit

INSTRUCTIONS AND PRECAUTIONS

Visit our website at:
http://www.harborfreight.com

⚠WARNING

Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.

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For technical questions or replacement parts, please call 1-800-444-3353.

Specifications

Pressure Gauge	0~100 PSI, 0.7 Bar, 1/4" x 18 NPT Swivel

Important Safety Information

WARNING!
READ AND UNDERSTAND ALL INSTRUCTIONS
Failure to follow instructions listed below may result in serious injury.
SAVE THESE INSTRUCTIONS

General Safety Rules

1. **Keep bystanders, children, and visitors away while operating the Vacuum Pump.** Distractions can cause you to lose control. Protect others in the work area from injury.
2. **Stay alert. Watch what you are doing, and use common sense when operating the Vacuum Pump. Do not use the tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating the tool may result in serious personal injury.
3. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and jewelry away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
4. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the power tool in unexpected situations.
5. **Use safety equipment.** Wear ANSI-approved safety glasses underneath a full face safety shield. Nonskid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.
6. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
7. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
8. **Maintain tools with care. Keep tools dry and clean.** Properly maintained tools are less likely to bind and are easier to control. Do not use a damaged tool. Tag damaged tools "Do not use" until repaired.
9. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
10. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.
11. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
12. **When servicing a tool, use only identical replacement parts. Follow instructions in the section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of injury.

Specific Safety Instructions

1. **Maintain a safe working environment.** Keep the work area well lit. Make sure there is adequate surrounding workspace. Keep the work area free of obstructions, grease, oil, trash, and other debris. Do not use this product in a damp or wet location.
2. **Maintain labels and nameplates on this product.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
3. **Keep the handle dry, clean, and free from brake fluid, oil, and grease.**
4. **Before use read and understand all warnings, safety precautions, and instructions as outlined in the vehicle manufacturer's service manual.** Every vehicle has specific measurement values for vacuum related readings. It is beyond the scope of this manual to properly describe the correct procedure and test data for each vehicle.
5. **Carbon monoxide is produced while a vehicle's engine is operating and is deadly in a closed environment.** Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, or nausea. If you have these signs, the work area may not be vented properly. Get fresh air immediately.
6. **Prior to using the Vacuum Pump, make sure to place the vehicle's transmission in "PARK" (if automatic) or "NEUTRAL" (if manual). Then, block the tires with chocks.**
7. **Be alert for hot engine parts to avoid accidental burns.**
8. **Avoid accidental fire and/or explosion. Do not smoke near engine fuel and battery components.**
9. **Use the Brake Bleeder only with brake fluid.** Do not attempt to use the tool to siphon any other liquids. Damage to the internal chamber and seal, or future brake fluid contamination may result.
10. **Follow guidelines for proper brake fluid disposal.** Used brake fluid should be removed from the vehicle and properly recycled. Many states require recycling. Contact your local solid/liquid waste authority for information on recycling. Do not reuse old brake fluid.
11. **Brake fluid may damage paint.** Clean up spilled fluid quickly.
12. People with pacemakers should consult their physician(s) before using this product on a running engine. Electromagnetic fields in close proximity to a heart pacemaker could cause interference or failure of the pacemaker. In addition, people with pacemakers should adhere to the following: Caution is necessary when near the coil, spark plug cables, or distributor of a running engine.
13. The brass components of this product contain lead, a chemical known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249, *et seq.*)
14. The warnings, precautions, and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. The operator must understand that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Setup Instructions

1. Open the Cup (3).
2. Seat the O-ring (11) completely into the groove in the top of the Cup (3).
3. Remove the shipping spacer that prevents the Vacuum Pump (1) handle from moving through its full range.
4. Cover the inlet of the Vacuum Pump with something such as the plastic bag. **To prevent injury, DO NOT USE YOUR SKIN TO PLUG THE INLET.** Operate the pump several times to create the vacuum. The vacuum should not decrease quickly. If air is entering through the vacuum release valve, tighten it. After the pump properly holds a vacuum, press in the Pump's vacuum release valve to release the vacuum. Set the plastic bag aside.
5. The vacuum pump should now be ready for use.

Operating Instructions

Read the <u>ENTIRE</u> IMPORTANT SAFETY INFORMATION section at the beginning of this document including all text under subheadings therein before set up or use of this product.

Vacuum System Testing

1. Position the vehicle in a flat, level outdoor area. Set the parking brake and chock the tires.
2. Attach a 23" Hose (4) to the Vacuum Pump (1).
3. Attach the other end of the Hose to the vacuum system. Keep clear of parts that will move or get hot while an assistant starts the engine. Wait until the vacuum reading stabilizes and compare it to the manufacturer's specification.
4. After obtaining a measurement, shut off the engine.
5. A low or unstable vacuum reading may mean a vacuum leak, vacuum line blockage, cylinder sealing problems, incorrect valve/ ignition timing, or other issues.
6. **NOTE:** Vehicle vacuum systems will differ. Consult the vehicle's service manual for proper testing procedures.
7. After testing is complete, disconnect the Vacuum Pump and Hose, remove any plugs or clamps and secure all vacuum lines. **CAUTION! Before driving the vehicle, carefully check for leaks and test for proper operation.**

Brake Bleeding

1. Attach a 3" Hose (5) to the bottom of the Suction Lid (2a).
2. Attach a 23" Hose (4) to the top of the Suction Lid (2a) that does not have the 3" Hose attached as shown in Figure A. Then, attach the other end of that 23" Hose to the Vacuum Pump (1).
3. Make sure the O-ring (11) is completely seated into the groove on the top of the Cup to provide a good seal. Firmly attach the Suction Lid (2a) to the Cup (3).
4. Remove the cap from the vehicle's master cylinder, and make sure the master cylinder is full of brake fluid. If not full, fill the master cylinder to capacity with clean, new brake fluid. (Use only the

kind of brake fluid recommended by the vehicle manufacturer.)

5. **NOTE:** Determine the proper brake bleeding sequence from your vehicle service manual (i.e., right rear wheel, left rear wheel, right front wheel, left front wheel).
6. Connect the 23" Hose (4) to the remaining port on the Suction Lid (2a).
7. Connect the other end of the 23" Hose and then connect the other end to the Brake Bleed Screw Adapter (9).
8. Squeeze the Handle of the Vacuum Pump (1) 10 to 15 times to create a vacuum in the Cup (3).

NOTE: The Gauge on the Vacuum Pump should read at approximately 10 inHg. Do not exceed 20 inHg. A greater vacuum could damage the vehicle's brake system.

9. Once the Vacuum Pump (1) is ready, check for leaks at the Cup (3) and at all Hose (4, 5) connections. If there is a leak, release the vacuum with the Vacuum Release Valve.
10. Correct the leak, and once again create a vacuum in the Vacuum Pump to approximately 10 inHg.
11. Open the vehicle's brake caliper bleed screw, and allow brake fluid to flow into the Cup (3). Then, retighten the bleed screw after bleeding.
12. Release the vacuum in the Vacuum Pump (1) with the Vacuum Release Valve. Then, disconnect the Brake Bleed Screw Adapter (9) from the vehicle's brake caliper bleed screw.
13. **NOTE:** When necessary, release the vacuum in the tool and empty its Cup (3) of old brake fluid. To assist in transport, this set includes a Transport Lid (2b) without hose connections. After the brake fluid is disposed of properly, resume bleeding the brakes.
14. Remove the cap from the vehicle's master cylinder, and refill the master cylinder back to its normal capacity

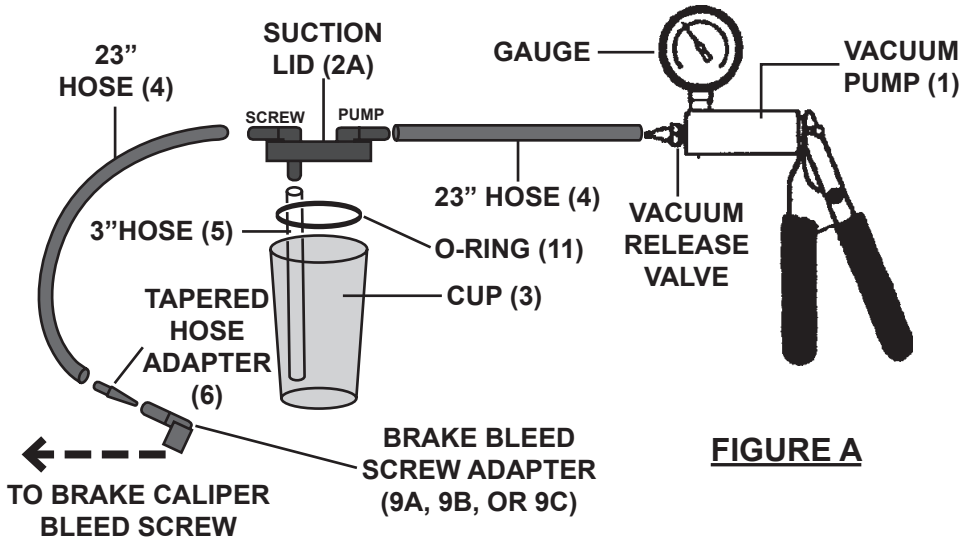

FIGURE A

with clean, new brake fluid. Then, replace the cap on the master cylinder.

15. Proceed to the vehicle's next wheel, and perform the same steps as above.
16. When finished using the Vacuum Pump, clean the tool and store it in a clean, dry location out of reach of children.
17. **WARNING! Before driving the vehicle, carefully check for leaks and test for proper brake operation.**

Maintenance and Servicing

1. **Before each use:** Inspect the general condition of the Vacuum Pump. Check for misalignment or binding of moving parts, cracked or broken parts, damaged Hoses, loose connections, and any other condition that may affect its safe operation. If a problem occurs, have the problem corrected before further use.
   Do not use damaged equipment.
2. **When cleaning:** Do not clean the Vacuum Pump with cleaners or other solvents not intended for use with plastic components. Use a clean cloth and, if necessary, a mild detergent. Do not immerse the Vacuum Pump in any liquid.
3. **When storing:** Do not store fluid in the Cup. Dispose of excess fluid properly, according to federal, state, and local guidelines. Store the Vacuum Pump in a clean, dry location out of reach of children.
4. **WARNING! All maintenance, service, or repairs not listed in this manual are only to be attempted by a qualified service technician**.

Record Serial Number Here:

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Note: If product has no serial number, record month and year of purchase instead.

PLEASE READ THE FOLLOWING CAREFULLY

NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Parts List and Diagram

Part	Description	Qty
1	Vacuum Pump	1
2a	Suction Lid	1
2b	Transport Lid	1
3	4 oz. Cup	1
4	1/4" x 23" Vacuum Hose	2
5	1/4" x 3" Vacuum Hose	2
6	Tapered Hose Adapter	2

Part	Description	Qty
7	"T" Hose Connector	1
8	Straight Hose Connector	1
9A	Brake Bleed Screw Adapter A	1
9B	Brake Bleed Screw Adapter B	1
9C	Brake Bleed Screw Adapter C	1
10	Universal Cup Adapter	1
11	Cup O-ring	1

LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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